

ADDITIONAL NOTES ON THE
GENUS FLINDERSIA (RUTACEAE) *

T. G. HARTLEY AND B. P. M. HYLAND

SINCE THE PUBLICATION of a revision of the genus *Flindersia* (Hartley, Jour. Arnold Arb. 50: 481–526. 1969), a new species of the genus has been discovered in northern Queensland, and the first known flowering specimens of *F. unifoliolata* Hartley have been collected. A description of this new material is given below. Specimens cited as QRS are deposited at the herbarium of the Queensland Research Station, Forest Research Institute, Forestry and Timber Bureau, Atherton, Queensland. The remaining specimens cited are all deposited at the Herbarium Australiense, C.S.I.R.O., Canberra (CANB).

Flindersia brassii Hartley & Hyland, sp. nov.

Arbor usque 30 m. alta; ramulis, foliis et inflorescentiis glabris vel puberulis vel subtiliter adpresse pubescentibus, pilis simplicibus et basifixis vel irregulariter ramosis et centrifixis. Folia opposita vel subopposita, paripinnata vel imparipinnata, 2–4-juga, 7–18 cm. longa; rhachidi basin versus puberula, aliter glabra; petiolulis foliolorum lateralium 2–6 mm. longis, rhachidi ad apicem extensa 0.7–1.6 cm. longa foliolum terminale ferente; laminis subcoriaceis, consperse pellucido-punctatis, subtus costa saepe sparse puberulis, supra glabris, ellipticis vel elliptico-oblongis, aequilateribus vel parum inaequilateribus, 4–8 cm. longis, 1.5–3.7 cm. latis, basi acuta vel cuneata plerumque parum inaequilatera, venis primariis utrinsecus costa 8–11, apice obtuso vel rotundato. Inflorescentia terminalis, usque 15 cm. longa plerumque fere lata quam longa; axibus et ramulis dense puberulis vel subtiliter adpresse pubescentibus. Flores bisexuales, ca. 4.5 mm. longi; pedicellis 2–3 mm. longis; sepalis puberulis, ciliolatis, late ovatis vel suborbicularibus, 1–1.5 mm. longis; petalis cremeis, in sicco pallide brunneis, abaxialiter dense adpresse pubescentibus, adaxialiter tomentulosis, ellipticis, 3.5–4 mm. longis, basi subito contractis; staminibus declinatis, ca. 2.5 mm. longis, filamentis glabris, antheris subdorsifixis, ca. 0.5 mm. longis, mucronulatis; staminodiis ca. 0.7 mm. longis; disco ca. 1 mm. alto; gynoecio ca. 1.3 mm. alto, ca. 1.5 mm. lato, ovulis 1 in quoque latere placentarum. Capsula maturite secedens in valvas distinctas, elliptico-oblonga, 7–11 cm. longa; exocarpio in sicco pallide brunneo, subtiliter adpresse pubescenti, muricato, processibus dense aggregatis, inaequilongis, usque 4.5 mm. longis; endocarpio in sicco luteo. Semina 1 in quoque latere dissepimentorum, utrinque alata, 5.5–7 cm. longa; hypocotylo terminali. HOLOTYPUS: *Hyland 2770* (CANB). FIGURE 1.

* This is the seventh in a series of papers on the Rutaceae of Malesia and Australasia.

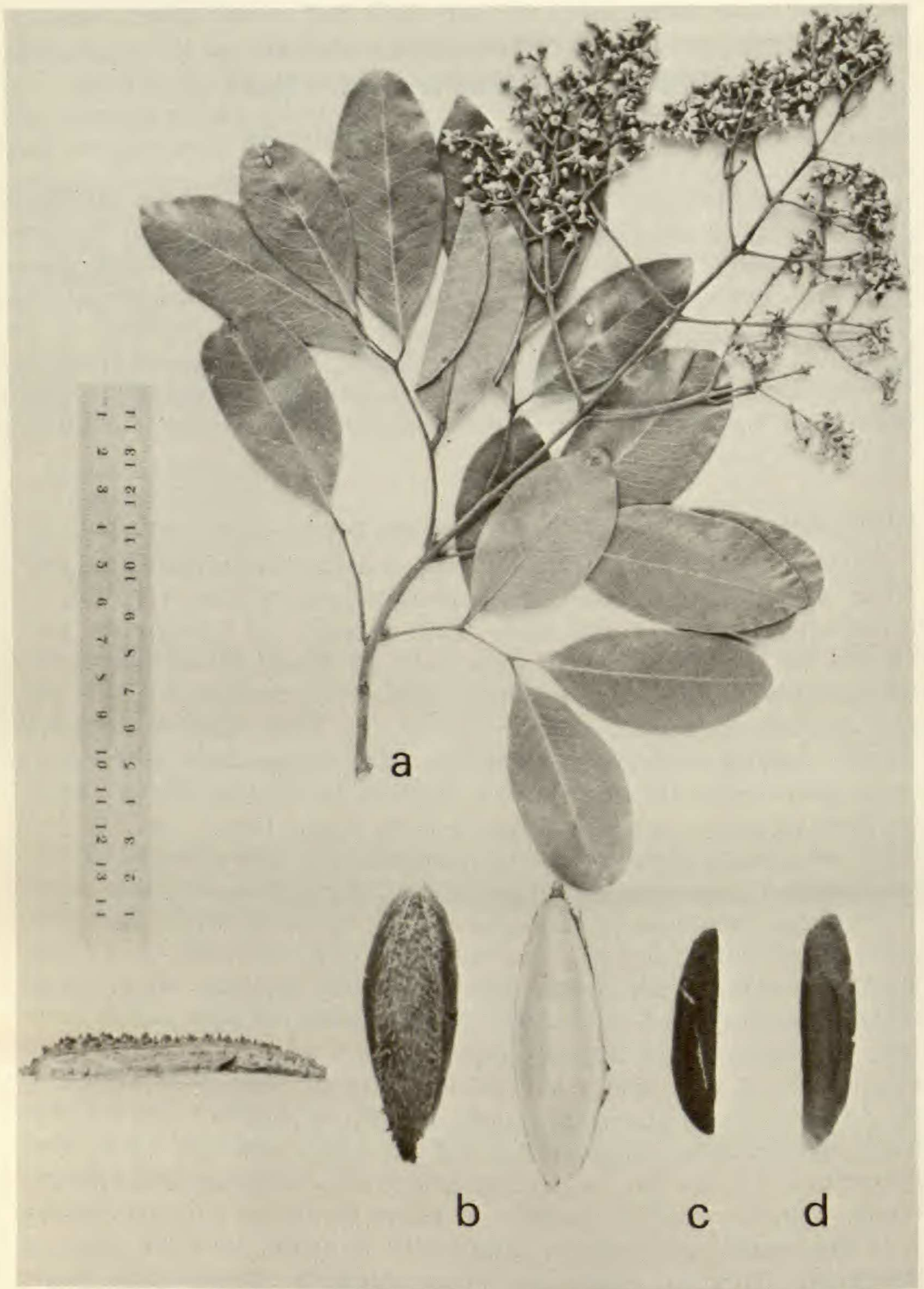


FIGURE 1. *Flindersia brassii* Hartley & Hyland. Photograph of the holotype (CANB): a, flowering branchlet; b, three of the valves of the fruit in lateral, abaxial, and adaxial views; c, dissepiment of the fruit; d, seed.

FIELD CHARACTERS. Medium to rather large tree 13–30 m. tall, 20–40 cm. d.b.h., without conspicuous buttresses. Bark thin (less than 2.5 cm. thick), bitter when chewed, pale brown, smoothish or minutely tessellated, lenticels vertically elongated, often inconspicuous; subrhytidome layer red, pink, or green; outer blaze pink to red, granular to fibrous; inner blaze red to cream, fibrous. Heartwood pale pinkish brown, with odor like that of scented maple (*Flindersia laevicarpa* White & Francis var. *laevicarpa*).

SEEDLING. (Description based on dried specimen of a 4-month-old plant grown from seed of *Hyland* 2737.) Plant about 25 cm. high, stem with five nodes above the cotyledons, youngest growth and petioles sparsely to densely puberulent with simple, basifixed trichomes. Cotyledons chlorophyllous, chartaceous, oblong, about 2.5 cm. long, base sagittate, apex obtuse. Leaves opposite at the first node (i.e., the first above the cotyledons), otherwise alternate; simple at the first four nodes, imparipinnate and unijugate at the fifth node. Petioles of simple leaves 0.3–2 cm. long (gradually increasing in length from the first to the fourth node). Blades of simple leaves subcoriaceous, broadly elliptic, entire, equal-sided, 4.5–8.5 cm. long (also gradually increasing in length from the first to the fourth node), base acute, main veins (in the largest leaf) 8 on each side of the midrib, apex obtuse. Imparipinnate leaf immature, 4 cm. long.

ECOLOGY. Dry, rocky rain forest, 60 to 360 meters. Associated species: *Podocarpus neriifolius*, *Licuala muelleri*, *Grevillea pinnatifida*, *Xanthophyllum octandrum*, *Halfordia kendack*, *Quassia bidwillii*, *Vavaea amicorum*, *Euroschinus falcatus*, *Eugenia* (*Syzygium*) *cormiflora* vel aff., *Metrosideros tetrapetala*, *Rhodamnia blairiana*, *Vitex acuminata*, and *Antirhea tenuiflora*.

Queensland. COOK DISTRICT: Cape York Peninsula, Upper Claudie River, Iron Range, *Hyland* 2734 (CANB, QRS), 2735 (CANB, QRS), 2736 (CANB, QRS), 2737 (QRS), 2738 (CANB, QRS), 2740 (QRS), 2743 (QRS), 2770 (CANB, holotype; QRS, isotype), 6663 (CANB, QRS), *Irvine* 248 (CANB, QRS).

This species is named in honor of Leonard J. Brass (1900–1971), one of the outstanding plant explorers of the Australasian region.

Flindersia brassii is related to *F.ournieri* Panch. & Sebert, an endemic to New Caledonia; *F. laevicarpa* White & Francis, with two varieties, one endemic to northern Queensland and one restricted to New Guinea and to Misool Island; and *F. brayleyana* F. Muell., an endemic of northern Queensland. It shares with these species the characteristic of a terminal hypocotyl in the embryo. This is a unique (and apparently primitive) feature, the hypocotyl being lateral in the embryos of the remaining species of the genus. Other similarities and differences between these four species are summarized in TABLE I.

In having abruptly narrowed petals and muricate capsules, *Flindersia*

TABLE 1. Characteristics of *Flindersia brassii* and related species.

	<i>F. brassii</i>	<i>F. fournieri</i>	<i>F. laevicarpa</i>	<i>F. brayleyana</i>
TRICHOMES	simple and basifixed or irregularly branched and centrifixed	simple and basifixed	simple and basifixed	simple and basifixed
LEAVES	opposite or subopposite; imparipinnate or paripinnate; 7-18 cm. long	alternate or (occasional leaves) opposite or subopposite; paripinnate; 6-13 cm. long	opposite; paripinnate; 6-30 cm. long	opposite or subopposite; paripinnate; 27-45(-75) cm. long
PETIOLULES OF LATERAL LEAFLETS	2-6 mm. long	4-9 mm. long	2-13 mm. long	10-28 mm. long
PETALS	abruptly narrowed at the base	abruptly narrowed at the base	gradually narrowed at the base	gradually narrowed at the base
STAMINAL FILAMENTS	glabrous	sparsely to rather densely villous	glabrous to densely pubescent	villous subapically
OVULES	1 on each side of the placentae	2 on each side of the placentae (one of each pair is smaller and apparently aborts)	1 or 2 on each side of the placentae (where there are two, one is smaller and apparently aborts)	1 on each side of the placentae
CAPSULE	7-11 cm. long	4-4.7 cm. long	2.9-5.2 cm. long	6-10 cm. long
EXOCARP	finely appressed-pubescent; muricate	glabrous; muricate	glabrous; almost smooth to bluntly short-muricate	glabrous; almost smooth
ENDOCARP	yellow	yellow-brown to brown	pale brown and sometimes flecked with orange	cream to reddish brown
SEEDS	1 on each side of the dissepiments; winged at both ends	1 on each side of the dissepiments; winged at both ends	1 on each side of the dissepiments; winged at both ends	1 on each side of the dissepiments; winged at both ends

brassii appears to be most closely allied to *F. fournieri*. This close relationship indicates that the New Caledonian species is of Australian ancestry, since the center of diversity of *Flindersia* is clearly in eastern Australia.

Flindersia unifoliolata Hartley, Jour. Arnold Arb. 50: 498. 1969.

Inflorescences from the axils of the upper leaves and terminal, 5–7 cm. long and about one-half as wide, upper axes and branches puberulent to finely pubescent with simple trichomes. Flowers bisexual, about 4 mm. long; pedicels puberulent, obsolete to 0.5 mm. long; sepals 5, puberulent and ciliate, ovate, 1.2 mm. long; petals deep red, rather sparsely strigose abaxially, glabrous adaxially, elliptic, 3.5 mm. long; stamens declinate, 3.5 mm. long, filaments rather stiffly pubescent subapically, anthers dorsifixed, obtuse, 0.8 mm. long; staminodes about 1 mm. long; disc 0.5–0.7 mm. high; gynoecium about 1.5 mm. high and 1.1 mm. wide, ovules 2 on each side of the placentae.

ADDITIONAL COLLECTION. Queensland. COOK DISTRICT: Mt. Bellenden Ker, montane rain forest, 1550 m., *Hyland 6569* (CANB, QRS).

T. G. HARTLEY
HERBARIUM AUSTRALIENSE
C.S.I.R.O.
DIVISION OF PLANT INDUSTRY
CANBERRA, A.C.T. 2601
AUSTRALIA

B. P. M. HYLAND
QUEENSLAND RESEARCH STATION
FORESTRY AND TIMBER BUREAU
ATHERTON, QUEENSLAND 4883
AUSTRALIA